

# Reconfigurable Computing for Dynamically Reprogrammable Communications, Phase I

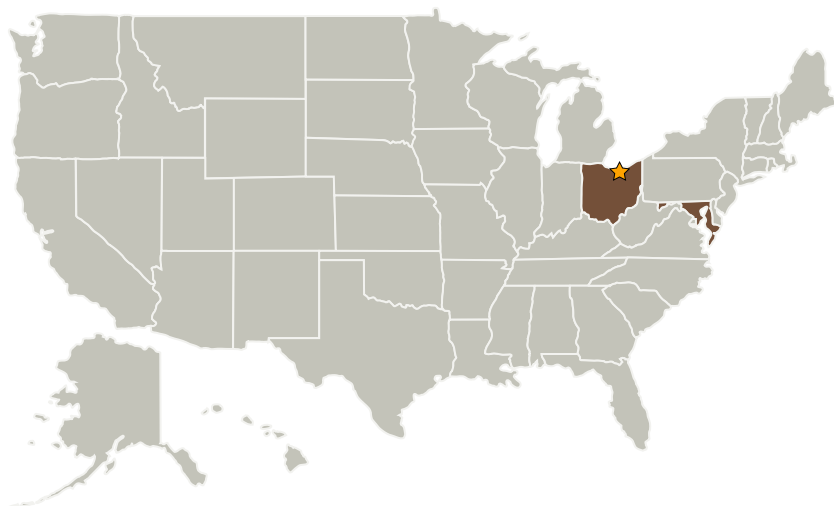
Completed Technology Project (2006 - 2006)



## Project Introduction

This project addresses the need for a framework and domain architecture suitable for reconfigurable transceivers and associated component technologies. The goal of this effort is to provide flexible, reconfigurable communications capability while minimizing on-board resources and cost. WW Technology Group's (WWTG) approach provides a formalized structure for: (1) the design and implementation of reconfigurable computing (RC) using FPGAs for high performance parallel processing and (2) algorithm updates over the life cycle of the platform. In addition, this RC-Enabled approach can replace manual, ad-hoc development methods and support Runtime Reconfiguration (RTR) activities that allow the dynamic modification of the functional configuration of the RC hardware and adaptive computing. Specifically, WWTG's approach offers reconfigurable software and firmware that provides access control, and reconfiguration process including partial reconfiguration. The WW Technology Group (WWTG) presents a novel approach for reconfigurable, reprogrammable communication systems that provide high performance within the constraints of power consumption, reliability, size, and weight. By combining the system on a chip (SoC) technologies in a distributed platform supported by a flexible software infrastructure, our system strikes the optimal balance between size, power consumption, and functionality.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Glenn Research Center (GRC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
WW Technology Group	Supporting Organization	Industry	Ellicott City, Maryland

## Primary U.S. Work Locations

Maryland	Ohio
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - └ TX05.5 Revolutionary Communications Technologies
    - └ TX05.5.3 Hybrid Radio and Optical Technologies